

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/660,386 | 09/12/2000 | Vladislav Vashchenko | NSC1-H1200 | 6925 |

7590 12/05/2001

MARK C. PICKERING
PILLSBURY WINTHROP LLP
50 FREMONT STREET
5TH FLOOR
San Francisco, CA 94105-2230

EXAMINER

NADAV, ORI

ART UNIT PAPER NUMBER

2811

DATE MAILED: 12/05/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/660,386

Applicant(s)
Vashchenko et al.

Examiner
ORI NADAV

Art Unit
2811



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Mar 15, 2001

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-7 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-7 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on Sep 12, 2000 is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other:

Art Unit: 2811

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, first and second well regions disposed in the semiconductor substrate in an elongated finger configuration must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

2. The abstract of the disclosure is objected to because the abstract should contain less than 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2811

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh (5,986,863).

Oh teaches in figure 4 an ESD protection structure for use with an integrated circuit comprising a semiconductor substrate 10 of a first conductivity type P, a first well region 30 of a second conductivity type N disposed in the semiconductor substrate, a second well region 20 of the second conductivity type disposed in the semiconductor, a gap region 40 of the first conductivity type disposed in the semiconductor substrate and separating the first well region from the second well region, a first floating region 36 of the second conductivity type disposed in the first well region adjacent to the gap region; a second floating region 26 of the second conductivity type disposed in the second well region adjacent to the gap region, a first contact region 32 of the first conductivity type disposed on the first well region and spaced apart from the first floating region, a second contact region 22 of the first conductivity type disposed on the second well region and spaced apart from the second floating region, a first contact region 34 of the second conductivity type disposed on the first well region and spaced apart from the first floating region, a second contact region 24 of the second conductivity type disposed on the second well region and spaced apart from the second floating region. Although Oh does not explicitly state that regions 26 and 36 are floating regions, regions 26 and 36 are not connected to external pads (figure 4). Therefore, regions 26

Art Unit: 2811

and 36 are held to be floating regions. Thus, the claimed structure is considered to be at least obvious over Oh's structure.

Regarding claim 2, Oh teaches a first electrical contact 5 connected to the first contact region of the first conductivity type 32, the first contact region of the second conductivity type 34 (a first diode), and the integrated-circuit (column 5, lines 14-16), and a second electrical contact Vcc1 connected to the second contact region of the first conductivity type 22, the second contact region of the second conductivity type 24 (a second diode) and to ground (column 1, lines 26-29). Note that the device would not operate in its intended use if not connected to ground and to an integrated circuit.

Regarding claim 4, Oh teaches in figure 4, the dopant concentrations of the first floating region and the second floating region are greater than the dopant concentrations of the first well region and the second well region.

Regarding claims 5-6, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a dopant concentration of the first well region and the second well region to be at least $1E17$ atoms per cm square and a gap region separating the first well region from the second well region with a minimum distance in the range of 0.18 microns to 0.25 microns in Oh's device, since it is a matter of design

Art Unit: 2811

choice within the skills of an artisan, subject to routine experimentation and optimization.

Regarding claim 7, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form first and second well regions in an elongated finger configuration in Oh's device in order to simplify the processing steps of making the device with a conventional configuration, of which official notice is taken.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B and N are cited as being related to ESD devices.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722

Art Unit: 2811

and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.


Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 3 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

Ori Nadav

November 12, 2001

Steven Loke
Primary Examiner

A handwritten signature in cursive script that reads "Steven Loke".